

ABSTRACT OF THE DISCLOSURE

An optical transmission system with optical amplifier repeaters whereby a flattened gain spectrum can be obtained even when a small number of pumping light sources is used in a Raman amplifier repeater.

- 5 In the optical transmission system with optical amplifier repeaters, first optical amplifier repeaters at plural stages and a second optical amplifier repeater having a gain control function are located in a gain control zone. The respective first optical amplifier repeaters perform backward pumping to corresponding Raman amplification optical fibers by
- 10 outputting pumping lights having different wavelengths by backward pumping. Accordingly, a variety of wavelengths are used in the gain control zone as a whole. Consequently, it becomes possible to obtain a flattened gain spectrum. Further, the second optical amplifier repeater performs a control of compensating distortion of spectral characteristics
- 15 when a failure occurs in at least one of the first optical amplifier repeaters.